

We claim:

1. A method for configuring a configurable hardware block, the method which comprises:

- (a) implementing one of commands and command sequences of a program to be executed, the implementing step includes:
 - (a1) ascertaining a given type of subunit of a configurable hardware block, the given type of subunit being required for executing a respective command;
 - (a2) selecting, if available, a subunit of the given type of subunit;
 - (a3) configuring configurable connections provided around the subunit selected in the selecting step, if the subunit of the given type of subunit is found in the selecting step;
- (b) ascertaining configuration data with the step of implementing the one of commands and command sequences; and
- (c) configuring the configurable hardware block by using the configuration data.

2. The method according to claim 1, which comprises starting the implementing step with a first command of a command block having only one entry point and one exit point.
3. The method according to claim 1, which comprises automatically ending the implementing step when a last command in a command block having only one entry point and one exit point has been implemented.
4. The method according to claim 2, which comprises performing the implementing step on a hyperblock basis.
5. The method according to claim 3, which comprises performing the implementing step on a hyperblock basis.
6. The method according to claim 1, which comprises automatically ending the implementing step if a hardware block component required for the implementing step is not available.
7. The method according to claim 1, which comprises automatically ending the implementing step if a hardware block component required for the implementing step is no longer available.
8. The method according to claim 1, which comprises assigning virtual units to functionally configurable physical subunits

of the configurable hardware block, the virtual units representing functions which can be imparted to the functionally configurable physical subunits by respectively configuring the functionally configurable physical subunits.

9. The method according to claim 8, which comprises entering the virtual units of all functionally configurable physical subunits of the configurable hardware block in a record selected from the group consisting of a table and a list.

10. The method according to claim 9, which comprises providing the record with entries including information about associations between the functionally configurable physical subunits and the virtual units respectively assigned thereto.

11. The method according to claim 9, which comprises providing the record with entries including information about how the functionally configurable physical subunits need to be configured for imparting the functions represented by the virtual units.

12. The method according to claim 1, which comprises selecting a physical subunit required for executing a command by searching for a virtual unit of a required type.

13. The method according to claim 1, which comprises ensuring that a virtual unit of a required type selected for a use and that virtual units associated with a same physical subunit as the virtual unit selected for the use can no longer be selected for use in subsequent implementations.

14. The method according to claim 1, which comprises checking whether a source, selected from the group consisting of a data source and a signal source and the source being defined by a command to be implemented, is a memory area previously having information written thereto by subunits of the configurable hardware block, and performing the checking step when configuring the configurable connections provided around the subunit selected in the selecting step, for connecting the subunit to the source.

15. The method according to claim 14, which comprises using a given one of the subunits as the source, if the source defined by the command to be implemented is found to have had information written thereto by the given one of the subunits of the configurable hardware block.

16. The method according to claim 1, which comprises checking whether a destination, selected from the group consisting of a data destination and a signal destination and the destination being defined by a command to be implemented, is a memory area

previously having information written thereto also by a further subunit of the configurable hardware block, and performing the checking step when configuring the configurable connections provided around the subunit selected in the selecting step, for connecting the subunit to the destination.

17. The method according to claim 16, which comprises using another memory area as the destination, if the destination defined by the command to be implemented is found to be a memory area which also has information written thereto by another subunit of the configurable hardware block.

18. The method according to claim 17, which comprises carrying out a register renaming process, as used for superscalar processors, for memory areas representing a same destination.

19. The method according to claim 1, which comprises:

carrying out a search for a memory area designated for constants and containing a given constant, if a command to be implemented includes the given constant; and

using the memory area designated for constants as a source selected from the group consisting of a data source and a signal source.

20. The method according to claim 19, which comprises:

storing the given constant in a new memory area designated for constants, if the given constant is not already stored in existing memory areas designated for constants; and

using the new memory area as the source.

21. The method according to claim 1, which comprises

attempting to form pseudo-hyperblocks including a plurality of hyperblocks when implementing commands as configuration data.

22. The method according to claim 21, which comprises forming the pseudo-hyperblocks by using an if-conversion.

23. The method according to claim 21, which comprises implementing commands as configuration data on a pseudo-hyperblock basis if possible.

24. A method for configuring a configurable hardware block, the method which comprises:

attempting to form pseudo-hyperblocks including a plurality of hyperblocks when implementing commands as configuration data; and

configuring a configurable hardware block by using the configuration data.

25. The method according to claim 24, which comprises forming the pseudo-hyperblocks by using an if-conversion.

26. The method according to claim 24, which comprises implementing, if possible, the commands as the configuration data on a pseudo-hyperblock basis.

03612659.000004

COMBINED DECLARATION AND POWER OF ATTORNEY
IN ORIGINAL APPLICATION

As a below named inventor, I hereby declare that: my residence, post office address and citizenship are as stated below next to my name; that I verily believe that I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled:

METHOD FOR CONFIGURING A CONFIGURABLE HARDWARE BLOCK

described and claimed in the specification bearing that title, that I understand the content of the specification, that I do not know and do not believe the same was ever known or used in the United States of America before my or our invention thereof, or patented or described in any printed publication in any country before my or our invention thereof or more than one year prior to this application, that the same was not in public use or on sale in the United States of America more than one year prior to this application, that the invention has not been patented or made the subject of an inventor's certificate issued before the date of this application in any country foreign to the United States of America on an application filed by me or my legal representatives or assigns more than twelve month prior to this application, that I acknowledge my duty to disclose information of which I am aware which is material to the examination of this application under 37 C.F.R. 1.56a, and that no application for patent or inventor's certificate of this invention has been filed earlier than the following in any country foreign to the United States prior to this application by me or my legal representatives or assigns:

German Application No. 198 43 640.8, filed September 23, 1998, the International Priority of which is claimed under 35 U.S.C. §119; and International Application No. PCT/DE99/02878, filed September 10, 1999, the Priority of which is claimed under 35 U.S.C. §120.

I hereby appoint the following attorney(s) and/or agent(s) to prosecute this application and to transact all business in the Patent and Trademark Office connected therewith:

HERBERT L. LERNER (Reg.No.20,435)
LAURENCE A. GREENBERG (Reg.No.29,308)
WERNER H. STEMER (Reg.No.34,956)
RALPH E. LOCHER (Reg.No. 41,947)

Address all correspondence and telephone calls to:

LERNER AND GREENBERG, P.A.
POST OFFICE BOX 2480
HOLLYWOOD, FLORIDA 33022-2480
Tel: (954) 925-1100
Fax: (954) 925-1101

0381556-03201

I hereby state that I have reviewed and understand the contents of the above-identified specification, including the claims, as amended by any amendment referred to above.

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

FULL NAME OF FIRST JOINT INVENTOR: RALF ARNOLD

INVENTOR'S SIGNATURE: _____

DATE: _____

Residence: POING, GERMANY

Country of Citizenship: GERMANY

Post Office Address: ASTERNWEG 3
D-85586 POING
GERMANY

FULL NAME OF SECOND JOINT INVENTOR: HELGE KLEVE

INVENTOR'S SIGNATURE: _____

DATE: _____

Residence: GEISENFELD, GERMANY

Country of Citizenship: GERMANY

Post Office Address: SCHIESSSTÄTTWEG 8
D-85290 GEISENFELD
GERMANY

03/11/2003 10:00:00

FULL NAME OF THIRD JOINT INVENTOR:

CHRISTIAN SIEMERS

INVENTOR'S SIGNATURE: _____

DATE: _____

Residence: HILDESHEIM, GERMANY

Country of Citizenship: GERMANY

Post Office Address: ST.-GODEHARD STRASSE 18
D-31139 HILDESHEIM
GERMANY

0
1
2
3
4
5
6
7
8
9
A
B
C
D
E
F
G
H
I
J
K
L
M
N
O
P
Q
R
S
T
U
V
W
X
Y
Z